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A Summary of Current Program 7/1/67
and Preliminary Report of Progress
for 7/1/66 to 6/30/67

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CONSUMER AND FOOD ECONOMICS

RESEARCH DIVISION

of the

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

and related work of the

STATE AGRICULTURAL EXPERIMENT STATIONS

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CURRENT SERIAL RECORDS

This progress report is primarily a tool for use of scientists and administrators in program coordination, development and evaluation; and for use of advisory committees in program review and development of recommendations for future research programs.

The summaries of progress on USDA and cooperative research include some tentative results that have not been tested sufficiently to justify general release. Such findings, when adequately confirmed, will be released promptly through established channels. Because of this, the report is not intended for publications and should not be referred to in literature citations. Copies are distributed only to members of Department staff, advisory committee members and others having a special interest in the development of public agricultural research programs.

This report also includes a list of publications reporting results of USDA and cooperative research issued between July 1, 1966, and June 30, 1967. Current agricultural research findings are also published in the monthly USDA publication, Agricultural Research. This progress report was compiled in the Consumer and Food Economics Research Division, Agricultural Research Service, U. S. Department of Agriculture, Hyattsville, Maryland.

UNITED STATES DEPARTMENT OF AGRICULTURE

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INTRODUCTION

This is a report of progress in research to improve the dietary situation, levels of living and home management practices and to develop guidance materials such as food budgets, dietary guides, and other aids to help families make the most advantageous use of their money and time resources. The research involves studies of the kinds, amounts, and costs of food consumed by different population groups and the practices of families in the purchase and household use of various foods; the development of tables of the nutritive values of foods; nutritional appraisal of diets and food supplies; studies of the kinds, amounts and costs of goods and services used for family living by rural households; studies of family practices in their management of financial and other resources; special economic studies of clothing and household textile use by families; and laboratory investigations basic to the development of recommendations for sizing of clothing, selection, use and care of clothing and household textiles, and the control of transmission of microorganisms by clothing and household textiles.

Research findings are disseminated to the scientific public through technical publications; to teachers and other leaders concerned with helping families and consumers, through semitechnical reports; and to consumers themselves, through popular-type publications. Two periodicals issued regularly by the Division help to disseminate research findings or current information of concern to the groups reached - Nutrition Program News prepared for members of state nutrition committees and other workers in nutrition programs; and Family Economics Review, servicing extension agents, teachers, and other professional workers interested in family and food economics and home management.

Research results are interpreted for use in rural development and other Federal antipoverty programs by a senior staff member who is an active member of a wide variety of interagency, interdepartmental and professional groups which are concerned with problems of low-income families and their solution.

The program of the Consumer and Food Economics Research Division is carried out at Hyattsville and Beltsville, Maryland, and Knoxville, Tennessee, and under contract and cooperative agreements and grants with State Experiment Stations, universities and private research organizations. The scientific effort devoted to this research in Fiscal Year 1966 totaled 29.9 scientific man-years at Hyattsville, 1.0 scientific man-year at Beltsville, 0.5 scientific man-year at Knoxville, and the equivalent of 9.6 scientific man-years in contract, cooperative agreements and grants. The present report summarizes the current program of the Division and of the State Experiment Stations in the areas reported, and presents briefly the Division's progress toward the objectives of the Federal program during Fiscal Year 1967.

Five examples of recent progress in the Division's research program follow:

New data on food expenditures of families with different incomes. A nationwide food consumption survey made by ARS food economists in 1965-66 has supplied new data on the effect of income on family expenditures for food. Total dollars spent for food ranged from \$15 per week for families with annual incomes under \$3,000 to \$38 for families with \$10,000 or more. The proportion of the food dollar spent for food away from home increased sharply with income--from 12 percent for incomes under \$3,000 to 27 percent at \$10,000 or more. Information on the amount of money that families at different income levels spend for food is essential for implementation of Government food distribution programs. The information is widely used also in consumer education programs and provides basic data for economic and marketing research on the demand for food.

Trends in U.S. consumption of fat and carbohydrate. Significant changes in the consumption of different types of fatty acids and of carbohydrate have occurred over the past 55 years. ARS nutritionists have estimated the amounts of polyunsaturated and saturated fatty acids and the two forms of carbohydrates--sugars and starch--in the national food supply. The polyunsaturated fatty acids in the national food supply have increased more than the saturated ones. The proportion of total calories provided by polyunsaturates is twice as high as it was 55 years ago. During the same time, the total amount of carbohydrate has decreased about one-fourth. The proportion of the total carbohydrates used as sugars, however, has increased from about one-third to one-half. Changes in the consumption of fat and carbohydrate are of special concern because of the implications they have in human nutrition and health.

Basic nutrition concepts promoted at Nutrition Conference. Four basic concepts for use in nutrition programs were presented at a National Nutrition Education Conference in February 1967. They are: (1) Nutrition is the food you eat and how the body uses it. (2) Food is made up of different nutrients needed for growth and health. (3) All persons, throughout life, have need for the same nutrients but in varying amounts. (4) The way it is handled influences the amount of nutrients in food, its safety, appearance, and taste. These concepts developed by ARS nutritionists and the Interagency Committee on Nutrition Education summarize the nutrition knowledge that is applicable to selecting food for health. They are research based generalizations that constitute a minimum of information needed by children and adults for wise food selection. These concepts can be expected to have an impact on nutrition education because they provide a tool for improving communication between nutritionists and the public.

Fewer families classified as "poor" when consumption, not income, is the measure of economic status. The number of families classified as living in poverty is reduced when the value of goods and services acquired in a year instead of annual income is used as the criterion of poverty. Families whose incomes are temporarily low are included along with those

who are chronically poor when income alone is used to measure economic status. ARS family economists have found from a nationwide survey of consumer expenditures that 60 percent of the four-person farm families in the North Central region maintained levels of living above \$3,000 in 1961 even though their incomes after taxes were below \$3,000. Income was a relatively true measure of economic status in only 40 percent of these families--where their levels of living were also below \$3,000.

These findings point to the need for a more realistic assessment of levels of living of rural families.

Household fabrics can disseminate Salmonella. ARS research has shown that Salmonella typhimurium can survive and remain virulent on cotton fabrics long enough to be of epidemiological significance. Bacteria recovered from cotton fabrics after 6-8 weeks storage at two relative humidities (35 percent and 78 percent at a room temperature of 77° F.) were highly virulent to mice. The bacteria persisted longer on fabrics inoculated by direct contact with an aqueous suspension of the bacteria than on fabrics inoculated with a fine spray of the suspension. They also persisted longer when fabrics inoculated by direct contact were stored at 35 percent relative humidity at 77° F. than when they were stored at 78 percent relative humidity at 77° F. Bacterial persistence on spray-inoculated fabrics was approximately the same at 35 percent relative humidity as at 78 percent relative humidity. The research was done under a USDA contract by Southern Research Institute.

Two examples of recent progress in research at the State Experiment Stations follow:

Kansas: Length of clothing wear in married women's wardrobes. Standards for clothing budgets are being requested with increasing frequency. In this study, the average length of wear of eight types of clothing by 230 married women was determined, and an attempt was made to identify some of the socio-economic factors. Forty-two percent of all garments were worn at least once a week. Average length of wear of "dress" garments varied from 3.4 years (slacks) to 6.0 (cloth jackets); of "work" garments from 3.0 years (slacks) to 6.8 (cloth jackets); of "all-purpose" garments from 3.0 years (slacks) to 6.0 (coats and jackets). Respondents with children wore dresses longer than those with no children. Respondents reporting family incomes between \$5,000 and \$7,000 wore their suits longer than the others. The children's age, the place of residence and husband's occupational status and education did not seem to influence length of wear.

California: Loss of thickness of carpets in the Tetrapod Walker carpet-testing machine. Loss of thickness in carpets affects the appearance of the pile. Procedures for accelerated simulation of foot traffic on carpets are needed to predict in-use performance. In this study samples of carpets of different fiber types and constructions were tested for loss of thickness

in a device called the Tetrapod Walker. This is essentially a revolving drum containing four simulated "feet." Results showed a linear relation between loss of carpet thickness and the logarithm of the number of revolutions of the instrument. Based on these promising results a tentative standard test method has been proposed.

AREA NO. 1. FOOD CONSUMPTION AND DIET APPRAISAL

Problem. Information about food consumption and dietary levels is essential to effective consumer education in nutrition and food management, to market analyses, and to agricultural policy and program evaluations--both to provide the basis for such evaluations and to measure progress. Needed are periodic surveys of the kinds, amounts, and costs of food consumed by households and individuals in different population groups; surveys of practices of families in the purchase and use of specific foods; studies of factors affecting food choices; and nutritional appraisals of diets and food supplies. To facilitate improvement of the dietary situation, source materials such as food budgets and dietary guides based on advancing knowledge about food and nutrition are needed for use in nutrition and consumer programs.

USDA AND COOPERATIVE PROGRAMS

The Department has a continuing, long-term program involving nutritionists, food economists, and statisticians engaged in applied research in food consumption and diet appraisal. The research is conducted at Hyattsville, Maryland, and under contract and cooperative agreement with State Experiment Stations, universities, and private research organizations. The Division's scientific effort devoted to research in this area in Fiscal Year 1967 totaled 15.7 scientific man-years at Hyattsville, and the equivalent of 0.2 scientific man-year in contract research and cooperative agreements. Of the total effort, 7.2 man-years were devoted to food consumption and dietary levels, 0.1 to food management practices, 1.3 to nutritive value of national food supply, 0.8 to food plans and food budgets, 2.6 to type A school lunch, and 3.9 to support for food and nutrition programs.

PROGRAM OF THE STATE EXPERIMENT STATIONS

The State program in this area totals 7.8 scientific man-years.

PROGRESS-USDA AND COOPERATIVE PROGRAMS

A. Food consumption and dietary levels

1. 1965 nationwide survey. Analysis of the household data showed that families surveyed in the spring of 1965 spent 36 cents of their food dollar for meat, poultry, fish and eggs; 19 cents for vegetables and fruit, including juices; 13 cents for milk and milk products; 12 cents for flour, cereals, and bakery products; 10 cents for beverages other than milk and

juice; and 10 cents for fats, sweets and all other foods. This division of the food dollar varied little among groups of families whether classified by region, urbanization or income. Choices within these broad groups did vary. For example, farm families used more flour, fat, sugar, and eggs per person and less bakery products than city families. Southern families used the most pork, poultry, and fish and the least beef; western families used the most beef.

Families surveyed in the spring of 1965 used more beef and poultry and less pork, fish and eggs than families surveyed in the spring of 1955. The families surveyed in 1965 also used more frozen milk desserts, cheese, dry and fresh skim milk and less fresh whole milk, cream, and evaporated milk; more canned and frozen vegetables and fruits and less fresh vegetables and fruits; more breakfast cereals and bakery products other than bread and less flour, bread and cereals other than breakfast cereals; more margarine and oils and less butter and shortening. Many of the changes reflected the trend to increased use of commercially-prepared foods. There was also greater use in 1965 of foods for snacking--ades and punches, soft drinks, potato chips, luncheon meat, peanut butter, crackers, cookies, doughnuts and candy.

Three papers reporting findings on the food consumption of households in spring 1965 were presented during the reporting period--one at the 1966 Annual Agricultural Outlook Conference, one at the National Workshop for Extension Food and Nutrition Specialists and another at the annual meeting of the American Home Economics Association. One preliminary report was published and a second was prepared for publication. Final reports are in preparation--one for the U.S. as a whole and one for each of the four census regions. These reports will provide information on the percentage of families using major groups, subgroups, and selected items of foods as well as the quantities and money value of the foods consumed. This information will be given separately for urban, rural nonfarm, and rural farm families and for all urbanizations combined. Another classification will be by income of family.

Tabulation of the data on household food consumption for summer, fall and winter and on the food intake of individuals for the spring of 1965 is scheduled for Fiscal Year 1968.

2. 1967 survey in two counties in Mississippi. The food consumption of a random sample of 509 families eligible for food assistance was surveyed, in cooperation with the Economic Research Service, in May 1967 in two counties in the Mississippi Delta. In Washington County, a Food Stamp Program had replaced a Food Donation Program in March 1967. In Sunflower County, a Food Donation Program of long standing was in operation. The families surveyed included participants and nonparticipants in both the Food Stamp Program and the Food Donation Program.

Preliminary evaluation of the data indicated that the average diet was poor. The more detailed analysis that is being planned may show that as many as 60 percent or more of the families had diets that supplied less than 2/3 of the

NAS-NRC Recommended Allowance in one or more nutrients. Foods most needed to improve the diets of these families are milk products, vegetables and fruits. Meat, poultry and fish, fats and oils, and sugar and sweets were used in larger quantities than considered necessary for an adequate diet. Diets of families who participated in the food program were similar to those who were eligible but did not participate.

Money value of the food used averaged about \$4.00 a person a week (including value of free stamps and donated commodities). This is about 25 percent less than the cost of the USDA Low-cost Food Plan for the South. Although nutritionally adequate diets can be obtained for less than the cost of this food plan, previous studies have shown that many families who spend less than the food plan requires are likely to have poor diets. On the average the families included in the survey spend about one-half of their incomes on food.

Data on height and weight for age obtained as an index of the nutritional status of children in the families surveyed were tabulated and analyzed by the Human Nutrition Research Division.

3. Diets and nutriture of preschool children in low- and middle-income families, Honolulu. Data needed to assess the nutritional situation of 292 children 2 to 3 years of age--154 in low-income families in Honolulu and 138 in middle-income families--have been collected. Included are a 3-day record of the child's food intake, a physical examination record, and information on the child's early diet, on the mother's food practices and attitudes, and on the family's socioeconomic situation. Preparation of data for tabulation and analysis of blood and urine samples and results of psychomotor development tests obtained as part of the study are in progress. This research is being carried out under cooperative agreement with the University of Hawaii.

B. Food management practices

Household practices in homefreezer management. Data collected during July 1964 - April 1965 from 240 urban and 242 farm families in and near Fort Wayne, Indiana, were further analyzed. More freezers on farms than in urban households were filled or almost filled to capacity at the time of the first interview (July-October 1964).

Urban households used an average of 12 packages or containers of frozen foods in a week, farm households 11. Both used more packages of meat than of any other kind of food--an average of about four per household.

The retail store was the source of 73 percent of the foods from the freezer used in one week in the city households and of 50 percent in the farm households. Home-produced foods accounted for 10 percent of the frozen foods used in urban households, 33 percent in farm households. In farm households, about two-thirds or more of the vegetables and the fruits, and somewhat less than one-half of the poultry and meats were home produced.

The total input for one month averaged about 45 pounds per household for both the city and farm families. The portion frozen in the home averaged 80 percent for farm households, almost 70 percent for urban households.

Urban households used 80 percent of the month's input of food within two months; farm households about 70 percent. More fruits and vegetables were held for longer periods than any other food. Baked goods and dairy products had the shortest storage.

The results of the study were reported in three articles in Family Economics Review and in a paper presented at the 44th Annual Meeting of the American Society of Heating, Refrigerating and Air-conditioning Engineers, June 1967. Information on household practices in freezer management provides a basis needed for developing guidance materials for the homemaker.

C. Nutritive value of the national food supply

Food energy (calories) and selected nutrients provided by the per capita food supply are estimated each year from data on apparent civilian consumption, retail basis, developed by the Economic Research Service. The estimates show that shifts in food consumption over the years have resulted in changes in the sources of fat, carbohydrate and protein. Vegetable fat now accounts for a higher percentage of total fat because of the shift from butter to margarine and from lard to shortening and the sharp increase in use of salad and cooking oils. The share of calories derived from total nutrient fat which increased from 1909 to the early 50's has changed little since. Saturated fatty acids account for a smaller share of the total fat today than they did 55 years ago--37 percent compared with 40 percent--even though the American diet now contains more fat. Oleic acid continues to account for about 41 percent of the total fat. The share attributed to linoleic acid has been increasing and is now roughly 13 percent. Starch and sugars now contribute about equally to total carbohydrates; in 1909-13, two-thirds was provided by starch and one-third by sugars. Animal products contribute two-thirds of the protein today compared to one-half 55 years ago.

The estimates also show that the amounts of calcium, iron, thiamine, riboflavin and niacin in the food supply have increased since 1909-1913. The amounts of vitamin A and C are about the same as in the early 1900's whereas the amounts of magnesium and food energy have decreased. Enrichment and fortification of foods account for six percent of the vitamin A content and five percent of the vitamin C content.

D. Food plans and food budgets

Estimates of the cost of food at home based on the USDA low-cost, moderate-cost, and liberal food plans for an adequate diet were calculated quarterly and published in Family Economics Review. Between March 1966 and March 1967, the cost for one week of the low-cost plan for a family of two adults and two school-aged children decreased from \$26.40 to \$25.80; the moderate-cost plan decreased from \$35.40 to \$34.60; and the liberal plan, from \$41.20 to

\$40.30. These decreases are about one-third as large as the increases which occurred between March 1965 and March 1966. Plans were made for revision of the family food plans, making use of information obtained in the 1965 nationwide food consumption survey. The Correspondence Aid "Sample Menus and Food List for One Week Based on USDA Economy Family Food Plans," was revised in April. Work is in progress on a Home Economics Research Report entitled "Food Selection for Good Nutrition in Group Feeding" and a Home and Garden Bulletin entitled "Your Money's Worth in Foods." An article, Low-cost Food Plan--Choices Influence Cost, was published in Family Economics Review to help users of the plan. It reported that the cost of the plan might be roughly 25 percent less than estimates published if only low-cost foods within food groups were used. Published estimates are based on "average" choices of low-income families surveyed in 1955. Such a cost reduction would require unusual skill in food management practices. Variety in meals would be limited.

E. Type A school lunch

1. Nationwide study of nutritive content. A nationwide study of the nutritive content of type A lunches served to 6th graders is being carried out in cooperation with the School Lunch Division, Consumer and Marketing Service. The purpose is to obtain data needed for evaluating the type A pattern. Twenty-lunch composites obtained from each of 300 schools located in 19 States and 5 geographic regions have been analyzed by a contractor, the Wisconsin Research Alumni Foundation, for proximate composition, fatty acids, and 12 minerals. Analyses for seven vitamins, iron and chlorinated hydrocarbon insecticides residues are in progress.

In general, the lunches met the nutritional goal of one-third of the 1963 Recommended Daily Dietary Allowance for 9 to 12 year olds for energy, calcium and protein. The average energy level of the lunches from the 300 schools was 735 Calories--the goal for girls and a little under the goal of 800 Calories for boys. Only two percent of the schools served lunches averaging more than 1,000 Calories in energy value and only six percent served lunches averaging less than 600 Calories. On the average, 39 percent of the calories were provided by fat in the lunches. The average calcium content was 400 milligrams per lunch--a little more than the goal of 367 milligrams. Lunches from only seven percent of the schools had calcium levels more than 10 percent below the goal and no school fell as much as 20 percent below the goal. The average protein content of the lunches from the individual schools ranged from 20.4 to 47.0 grams. Thus all met the goal of one-third of the Recommended Daily Allowance for 9 to 12 year olds--18.3 grams for girls and 20 grams for boys.

2. Acceptance in Louisiana high schools. A study of factors affecting acceptance of the lunch program by 10th grade students in Louisiana is being carried out under cooperative agreement with Louisiana State University. Thirty students (15 boys and 15 girls) from each of 17 schools, their parents and the officials of the schools provided information for the study. The

schools included urban and rural schools, large schools and small schools and schools with low, medium and high levels of participation in the school lunch program. In schools with a low level of participation, less than half of the students ate school lunches; in those with a high level of participation, almost eight out of nine students ate school lunches. In all eight schools with a high level of participation, students were not permitted to leave the school grounds at lunch.

Foods most frequently reported as liked by students were main dishes, sandwiches, potatoes, rolls, desserts and milk. Foods most frequently disliked were vegetables and salads. According to reports of reactions to nine foods the taste of a food was the most important element in determining whether it was liked or disliked.

Changes needed in the program mentioned most frequently were related to food preparation, rate of movement of the lunch line (too slow), and length of eating time (too short). The furnishings in the lunchroom were rated cheerful, the hot foods right in temperature, the milk cold and the food appetizing more frequently in schools with a high rate of participation in the lunch program than in schools with a low rate of participation.

Although about 80 percent of the parents reported that they wanted their children to eat the school lunch, only about 65 percent of the students ate the school lunch on the five days studied. The average lunch price varied from 16 cents in schools with medium participation to 24 cents in those with high participation.

F. Support for food and nutrition programs

The Nutrition Education Conference was held in Washington, D. C., February 20-22, 1967, with about 275 persons representing a wide variety of agencies and disciplines from most of the States. The theme was "effective communication" and coordination of nutrition programs as a means of facilitating behavioral changes in eating habits. The program provided background information on the Nation's health, the role of the Food and Nutrition Board, NAS-NRC, in formulating the scientific basis for nutrition practices, and the problems and practices in community nutrition today as seen by community workers. The social and cultural determinants of food habits and the psychological aspects of food purchasing were also discussed. A panel provided information on the use of communication media to stimulate change and a symposium brought information on current efforts in communication.

Bimonthly publication of Nutrition Program News, which reaches some 7,000 workers in nutrition and related fields, continued. Articles published included Nutrition Activities in Poverty Programs, Nutrition Program News Reviewed, Community Nutrition Training Programs for Dietitians, Helping Disadvantaged Families Improve Their Diets.

Sixteen talks were given at the request of groups involved in community nutrition programs. Three radio tapes and five TV tapes on nutrition were made for educational use throughout the country. Providing consultant help and participating in conference on nutrition education continued to be major activities.

Nutrition research findings continue to be studied and interpreted for application to problems in food selection and food use. Assistance was given in locating, assembling, summarizing, and tabulating data for use in revising the chapter on protein and amino acids in the NRC-NAS publication on evaluation of protein nutrition. Sections on nutrition and dietary guidance were prepared for a revision of Home and Garden Bulletin No. 1, Family Fare. Work is in progress on a Pocket Calorie Guide and on sections of a major revision of Home and Garden Bulletin No. 43, Money Saving Main Dishes.

Division nutritionists continued to give assistance to support programs of other government agencies. Technical assistance was given to the School Lunch Division of the Consumer and Marketing Service on a variety of subjects. The food and nutrition program of Project Head Start, Office of Economic Opportunity benefited from advisory services of several staff members. Several booklets to use in training programs for parents and Head Start personnel were developed by committees on which CFE staff served.

Five of the Division's publications are being evaluated to determine (1) whether they should be discontinued or revised and (2) if revised, how they can be made more useful and effective. The publications are Home Economics Research Report No. 3, Essentials of an Adequate Diet, Home and Garden Bulletin No. 13, Food for the Family with School Children, Home and Garden Bulletin No. 17, Food Guide for Older Folks, Home and Garden Bulletin No. 94, Family Food Budgeting for Good Meals and Good Nutrition and Leaflet No. 268, Eat a Good Breakfast to Start a Good Day. Evaluations are based on questionnaires, answered by representative users--state public health nutritionists, state and city supervisors of home economics, and nutrition educators in colleges and universities.

The Division is joining six other agencies of the Federal government in a survey of the attitudes and behavior of adults toward fallacies and misrepresentation of foods and health products. The purpose is to obtain information needed in developing effective guidance materials on food selection. The survey is being carried out by National Analysts, Inc., under a contract administered by the Food and Drug Administration. CFE is represented on the Steering Committee which serves as governing body for the survey.

PUBLICATIONS--USDA AND COOPERATIVE PROGRAMS

Food Consumption and Dietary Levels

- Adelson, S. F. 1967. Changing Food Patterns in the United States. June. Processed, 14 pp. Paper presented at Annual Meeting of the American Home Economics Association.
- Baker, D. and Beloian, A. 1967. Diets in Households in Washington, D. C. Family Economics Review. June, pp. 8-11.
- Clark, F. 1966. Family Food Spending--A Preview from the 1965-66 Nationwide Survey. September. Processed, 9 pp. Paper presented at the National Workshop for Extension Food and Nutrition Specialists, Dallas, Texas.
- Clark, F. 1966. Changing Patterns in Food Spending. November. Processed, 11 pp. Paper presented at the 44th Agricultural Outlook Conference, Washington, D. C. Also in Family Economics Review, September, 1966, pp. 12-14.
- Clark, F. 1967. USDA Household Food Consumption Surveys and Their Uses. April. Processed, 13 pp. Paper presented at a Conference on Purposes and Uses of Federal Statistics sponsored by the American Marketing Association. Washington, D. C. Printed in Hearings before the Subcommittee on Economic Statistics of the Joint Economic Committee on the Coordination and Integration of Government Statistical Programs. Hearings conducted from May 17 to June 8, 1967.
- Consumer and Food Economics Research Division, 1966. Money Value of Food Used by Households in the United States, Spring 1965. Preliminary Report. CFE (Adm.)-300. September.

Nutritive Value of National Food Supply

- Friend, B. 1966. Nutritional Review. National Food Situation NFS-118. Outlook Issue. November.

Food Plans and Food Budgets

- Consumer and Food Economics Research Division. 1966. Cost of Food at Home. Family Economics Review. September, p. 22 and December, p. 26.
- Consumer and Food Economics Research Division, 1967. Cost of Food at Home. Family Economics Review. March, pp. 10-12, June, p. 20.
- Peterkin, B. 1967. Low-cost Food Plan--Choices Influence Cost. Family Economics Review. March, pp. 7-9.

Consumer and Food Economics Research Division, 1967. Sample Menus and Food List for One Week based on USDA Economy Family Food Plan, CA 62-20, revised, April.

Consumer and Food Economics Research Division, 1967. Recipe Flyers on Food for Thrifty Families. Packet B-1.

Support for Food and Nutrition Programs

Fowler, H. P. 1966. Nutrition Activities in Poverty Programs. Nutrition Program News. July-August. 4 pp.

Fowler, H. P. 1966. Nutrition Program News Reviewed. Nutrition Program News. September-October. 4 pp.

Fowler, H. P. 1966. Community Nutrition Training Programs for Dietitians. Nutrition Program News. November-December. 4 pp.

Wolgamot, I. H. 1967. Helping Disadvantaged Families Improve Their Diets. January-April. 4 pp.

Hill, M. M. 1967. Nutrition Education Conference-1967. Nutrition Program News. May-June. 4 pp.

AREA NO. 2. TABLES OF FOOD COMPOSITION

Problem. Reliable values on the composition of foods are needed for appraisal of diets and food supplies, for many types of research in foods and nutrition, for developing materials to help in dietary planning and food selection, for use in production planning for this and other countries, for developing programs of food distribution, and as the basis for food and dietary standards in regulatory programs. Developments in cultural, breeding, and manufacturing practices introduce new products and changes in the composition of others. Representative nutritive values that reflect these developments are required for application to practical problems.

USDA AND COOPERATIVE PROGRAM

Continuous review and evaluation is made of the world's scientific and technical literature on the composition of foods--over 100 journals in addition to numerous special reports being reviewed by the staff assigned to this program. For 75 years, tables of data for certain nutrients in foods have been published by the U.S. Department of Agriculture. Each new publication reflects advances both in food analyses and in knowledge of nutritional needs. Nutrients are added to the tables as information on their presence in foods and on human requirements for them becomes available. Also reflected are advances in technology of preparing and marketing foods and in augmented facilities for transportation.

The Federal scientific effort devoted to work in this area conducted in Hyattsville in Fiscal Year 1967 totaled 8.8 scientific man-years.

PROGRAM OF THE STATE EXPERIMENT STATIONS

The States report no research in this area.

PROGRESS--USDA AND COOPERATIVE PROGRAMS

A. B-vitamins in foods

Summarization of data and derivation of representative values for a publication on the content of pantothenic acid, vitamin B₆ and vitamin B₁₂ in foods are now complete. The publication will contain a table of values for estimating the amounts of these vitamins in some 700 items of food. The data will be in terms of the number of milligrams of nutrient in 100 grams of edible portion and in one pound of food as purchased. Foods from each of the major food groups and many processed and prepared foods are included.

The values will provide the basis for evaluating food supplies and diets with respect to these vitamins. Data on the proportion of the three forms of vitamin B₆--pyridoxine, pyridoxal, and pyridoxamine--found in foods will be included in the publication. Scientific names are given for identifying the plants and animals used for the foods listed in the publication.

B. Amino acid content of foods

An extensive search for published and unpublished data on the amino acid content of food is underway. Priority is being given to deriving representative values for the content of individual amino acids in fruits and vegetables. Preliminary values have been derived for the phenylalanine content of about 15 fruits and 25 vegetables and for the tyrosine content of 10 fruits and 20 vegetables. The values for phenylalanine content are much lower than the widely used values calculated as 5 percent of the protein content of the fruit or vegetable. These lower values indicate that larger quantities of fruits and vegetables than presently allowed can be safely included in the diets of children with phenylketonuria. A journal article is being prepared to make the values for phenylalanine and tyrosine contents of fruits and vegetables available to those who plan diets for children with phenylketonuria and tyrosinemia.

C. Nutritive value of retail and household units of food

The development for publication of a table showing nutritive values of foods in terms of common retail and household units is continuing. This new table will greatly extend the uses of the basic data on the nutritive value of foods from Agriculture Handbook No. 8 as it will provide the information in terms that will be directly applicable in a wide variety of purposes. Values will be given for proximate composition, calcium, phosphorus, iron, sodium, potassium, vitamin A, thiamine, riboflavin, niacin, ascorbic acid, and selected fatty acids. Final values are now ready for more than 500 items of food and are nearing completion for many others.

D. Revision of Handbook No. 8

Work to obtain data for the next revision of Agriculture Handbook No. 8 Composition of Foods...raw, processed, prepared, is proceeding along several lines. A study of the relationship among nutrients in milk and selected cheeses has been initiated in cooperation with the Human Nutrition Research Division to obtain needed data on the composition of these foods. A recent review of the literature shows an inadequacy of data for several important nutrients and a wide range in values for others. Information from this new study should serve as a basis for evaluating scattered data in the literature, and for developing values suitable for inclusion in tables of food composition.

Methods for calculating nutritive values of cooked pork, lamb, and fish from raw cuts of meat and fish are under study. A study of the literature on thiamine and riboflavin contents of raw and cooked beef to obtain data for reappraisal of vitamin retention values is nearing completion.

A search of the literature for data on the sodium and potassium content of foods has shown that poultry, a number of important fruits including bananas, spices and condiments, and nuts are among the foods for which few data for sodium and potassium are available. Possible arrangements for obtaining such data are being explored. A source of extensive data on trace elements in foods has been located and tentative arrangements have been made for obtaining the data.

E. Special services

Dissemination of information related to the composition of foods is accomplished through various special services. During Fiscal Year 1967, a chapter on The Nutritive Value of Frozen Foods was prepared for Volume II of the 4th edition of The Freezing Preservation of Foods. Data on the composition of 125 new items of foods encountered in dietary surveys were prepared for the Division's Food Consumption Branch. Data on the composition of about 2000 items were reviewed for possible revision. Information and technical assistance were given to research workers, members of the medical profession, authors of scientific texts and articles, and to representatives of industry associations, Food and Agriculture Organization of the United Nations, Agency for International Development, U.S. Tariff Commission, Public Health Service, the Children's Bureau, and Federal Trade Commission.

PUBLICATIONS--USDA AND COOPERATIVE PROGRAMS

Gilpin, G. L. and Merrill, A. L. 1966. Protecting Food Quality in the Home. Chapter in Protecting Our Food, 1966 Yearbook of Agriculture. pp. 170-178.

AREA NO. 3. FAMILY ECONOMICS AND RURAL LIVING

Problem. Levels of living of rural families can be described in part by the quantities of goods and services they use for family living and the quality of housing they occupy. Periodic studies that describe the situation and show the adjustments families make to economic change in their use of money and other resources are needed to facilitate the development of programs to improve levels of living. Current antipoverty programs accentuate the need for indicators of economic well-being that are better than income and simpler than the money value of consumption which can be obtained only through costly and time-consuming surveys. Methods of determining the cost of equivalent levels of living on and off the farm, in different regions, and for families of different characteristics are needed to identify groups in poverty and count the poor. Data on quantities of clothing and household textiles used and the frequency with which they are replaced are needed in developing budgets and to delineate those groups of items in which demand for agricultural fibers might be expanded. Background information based on advancing knowledge in family economics is in demand for consumer education and family living outlook reports.

USDA AND COOPERATIVE PROGRAM

The Department has a continuing long-term program involving family economists and statisticians who conduct basic studies of the expenditures of farm families for family living and of their home management practices. They also develop source materials for consumer education and information on the current family situation and outlook. The research is conducted at Hyattsville, Maryland and under contract, cooperative agreement and grant at State Experiment Stations, universities and private research organizations. Some research is conducted cooperatively with other Federal agencies. For example, nationwide surveys of consumer expenditures are conducted cooperatively with the Bureau of Labor Statistics and, within the USDA, with the Statistical Reporting Service and Economic Research Service.

The Division's scientific effort devoted to research in this area in Fiscal Year 1967 totaled 5.4 scientific man-years at Hyattsville and the equivalent of 7.1 scientific man-years in research carried out under contracts, cooperative agreements and grants. Of this number 7.6 scientific man-years were devoted to rural family living studies; 2.5 to management of family resources; 1.2 to clothing budgets; and 1.2 to Family Economics Review and Outlook reports.

PROGRAM OF THE STATE EXPERIMENT STATIONS

A total of 41.9 scientific man-years was devoted to research in this area in Fiscal Year 1967.

PROGRESS--USDA AND COOPERATIVE PROGRAMS

A. Rural family living studies

1. Rural family spending patterns in 1961. Analyses of data from the 1960-1961 Survey of Consumer Expenditures conducted jointly by USDA and the Bureau of Labor Statistics have continued to quantify some well-known relationships and to bring out some new ones. A comparison of the spending of large families (six or more members) and small families (two members) having the same incomes revealed some interesting facts. The large families spent more than twice as much for clothing, for reading and education, and for recreation. They spent somewhat less than twice as much for food; about one-third more for housefurnishings and equipment and for transportation; about one-fourth more for personal care and for tobacco and alcohol; about one-twelfth more for household operation, about the same for shelter, and a little less for medical care. As a result, current consumption expenditures of large families averaged about 40 percent above those of small families. Savings of large families averaged about 90 percent below those of small families.

Urban families reported the highest average expenditures for clothing in the 1960-61 Survey of Consumer Expenditures and rural nonfarm families the lowest, but farm families put a larger proportion of their total expenditures for current consumption into clothing than did the other groups. Within the family size range of two to five persons and at a constant level of income (\$6,000-\$7,500) a one-person increase in family size resulted in a decrease in per person spending on clothing of about 20 percent. An increase in income reported in the survey year resulted in an approximately proportional increase in spending for clothing by urban and rural nonfarm families (e.g., income elasticity was about 1.0). For farm families, clothing expenditures increased at only half the rate at which income increased (e.g., income elasticity of about 0.5). Variation in the income elasticity of clothing in the three groups can be related to the degree to which annual income represents the true economic position of the family. Use of techniques that approximate normal income over a period of years rather than income in any one year indicates that the true income elasticity of clothing expenditures is considerably above unity. These findings provided a basis for an article in FAMILY ECONOMICS REVIEW and for a paper entitled "Clothing in the Family Budget," presented at the 1967 Annual Meeting of the American Home Economics Association.

The cost of raising a farm child at three levels of expenditure linked to the levels of the USDA food plans were computed from data obtained in the 1960-61 Survey of Consumer Expenditures. The costs of raising a child to his

eighteenth birthday varied from an average of \$15,000 at the low-cost level to an average of \$27,000 at the liberal-cost level in the North Central Region and from an average of \$13,000 at the low-cost level to an average of \$27,000 at the liberal-cost level in the South. Costs per year increased with the age of the child. In the North Central Region costs in the 18th year were about 1.7 times the costs in the first year. In the South, the increase in cost with age was somewhat less than in the North Central Region. Food and clothing accounted for most of the year-to-year variation. The cost of both increased with the age of the child. For the 18-year span, food was found to be the largest single cost in both regions at the low-cost level. At the moderate-cost and liberal levels, housing costs were higher than food costs. These findings were reported at the 1966 Annual Agricultural Outlook Conference.

Analysis of the 1960-61 expenditure data indicates that the number of families classified as "poor" is reduced--at least in the farm population--when the criterion of poverty is based on the value of goods and services bought in a year rather than on income. Families whose incomes are temporarily low frequently have resources in savings and credit to maintain a level of living above the poverty line. As an example, it was found that 60 percent of four-person farm families in the North Central region with incomes below \$3,000, approximately the poverty line for four-person families, were able to maintain levels of living above \$3,000.

2. Levels of living. Two studies have been initiated to provide information on levels of living needed in rural development and other antipoverty programs.

The purpose of one study is to develop an index that reflects the economic status of rural families more accurately than does current income. Much information on the current consumption of rural families will be obtained as a by-product of this work and will be made available to those working to enhance levels of living in low-income areas. This study is being carried out by the Research Triangle Institute working under contract.

The purpose of the other study is to determine the income needed to provide equivalent levels of living on farms and in rural nonfarm and urban areas. It is also designed to show regional differences and differences in the needs of families by size and composition. A paper on Methods of Selecting Families at Equivalent Levels of Living was presented at a conference on Issues in Family Economics sponsored by the Family Economics and Home Management Section of the American Home Economics Association. The approach is predicated on the thesis that families use their resources to obtain a level of living that provides them equal degrees of satisfaction in all areas of living. An area in which needs are comparable in all walks of life can then be used to locate families at equivalent levels of living. Food is such an area, and also is the one area for which there are scientific standards. The expenditure patterns of groups of families whose average food consumption is at the level of the Department's food plans provide the basis for estimating the required income. Data from the 1960-61 Survey of Consumer Expenditures are being used in this project.

B. Management of family resources

Work has been initiated through a research grant to Washington State University on the development of a model which simulates the family financial decision-making process. Experimentation with the model is expected to identify factors previously not recognized as relevant to decision making and to aid in the study of interrelationships between psychological and sociological variables and their effects on decisions.

Under a research grant at Michigan State University, research is underway to provide information on some factors that contribute to the rise of families out of poverty. Their use of their resources of time, income, and equipment in the performance of household tasks is being studied to differentiate activity patterns that consume or augment resources and those that are wasteful of resources. Differences in the patterns of upwardly mobile low-income families and families not improving their economic position will be sought. This information will provide the basis for educational programs in effective consumption.

Three publications that are concerned with the management of family resources are in press. They are Job-Related Expenditures and Management Practices of Gainfully Employed Wives in North Carolina, Home Economics Research Report 34; Research on Time Spent in Homemaking--An Annotated List of References, ARS 62-15; and a revision of Helping Families Manage Their Finances, Home Economics Research Report 21. Data from the 1960-61 Survey of Consumer Expenditures have been incorporated in the latter and a new section on the expenditure patterns of other families written around these data.

C. Clothing budgets

Plans have been substantially revised for the development of clothing budgets at low-cost and moderate-cost levels, using data from the 1960-61 Survey of Consumer Expenditures. These levels will be defined and the clothing expenditures of families in them will be determined using the method described above for locating families at equivalent levels of living. The clothing budgets and the USDA food plans will then be at the same levels.

A study of clothing acquisitions among low-income families in Des Moines is being carried out under cooperative agreement with the Iowa Agriculture and Home Economics Experiment Station. Data on acquisition of clothing by all means and on stocks of clothing on hand have been obtained from 419 families for 1,603 persons. The data will be used in determining the inventories that related to specified levels of acquisition and in developing estimates of the relative wear-life of purchased clothing and clothing from other sources. The estimates will make it possible to indicate in budgets the ratios at which new purchases and acquisitions from other sources may be interchanged.

D. Family Economics Review and Outlook Conference

Family Economics Review was published quarterly. The Division was responsible for the planning of four sessions on family living at the 1966 Annual Outlook Conference and for the presentation of four papers at these sessions. Planning is underway for three sessions on family living for the 1967 conference.

PUBLICATIONS--USDA AND COOPERATIVE PROGRAMS

Rural Family Living Studies

United States Department of Agriculture. 1966.

Consumer Expenditures and Income: Detail of Expenditures and Income,
Rural Farm Population

Northeastern Region	- CES Report No. 31.	91 pp.
North Central Region	- CES Report No. 32.	122 pp.
Southern Region	- CES Report No. 33.	122 pp.
Western Region	- CES Report No. 34.	80 pp.
United States	- CES Report No. 35.	121 pp.

Britton, V. 1966. Clothing Expenditures of U.S. Families, Family Economics Review, September, pp. 3-18.

Mork, L. F. 1966. Cost of Raising a Child. Paper presented at 44th Annual Outlook Conference, processed 16 pp. Condensed in Family Economics Review, December, pp. 14-16.

Mork, L. F. 1967. The Effect of Family Size on Expenditures. Family Economics Review, March, pp. 13-16.

Pennock, J. L. 1966. Home Production and the Family's Food. Family Economics Review, September, pp. 13-14.

Pennock, J. L. 1967. Clothing in the Family Budget. Paper presented at 58th Annual Meeting of the American Home Economics Association, Dallas, Texas, June 1967, processed, 4 pp.

Management of Family Resources

Holmes, E. G. and Jaeger, C. 1966. A Simplified Method of Finding the Annual Interest Rate in Installment Credit. Family Economics Review, September, pp. 15-17.

Family Economics Review and Outlook Reports

(One paper for 44th Outlook Conference is listed above, another is listed in Area 1.)

Britton, V. 1966. Clothing and Textiles: Supplies, Prices and Outlook. Paper presented at 44th Annual Outlook Conference, processed, 12 pp., condensed in Family Economics Review, December, pp. 5-7.

Smythe, K. 1966. Outlook for Homefurnishings and Equipment. Paper presented at 44th Annual Outlook Conference, processed, 15 pp.; condensed in Family Economics Review, December, pp. 8-11.

Consumer and Food Economics Research Division. 1966-67. Four issues of Family Economics Review, ARS 62-5. September, 1966, 23 pp.; December 1966, 27 pp.; March 1967, 24 pp.; June 1967, 20 pp. (Signed articles by CFE staff are listed in appropriate Areas of this report.)

_____. 1966. The Family. Section 6 in Handbook of Agricultural Charts
1966. H. 325. pp. 63-69.

Rural Development

Wolgamot, I. H. 1967. Working with Low-Income Families, An Evaluation of the American Home Economics Association National Workshop, Journal of Home Economics, January, pp. 11-13.

Wolgamot, I. H. 1967. Helping Disadvantaged Families Improve Their Diets. Nutrition Program News, January-April.

AREA NO. 4. TEXTILES AND CLOTHING

Problem. Consumers need guidance on the selection, use, and care of household textiles and apparel to obtain maximum benefit from the everchanging variety of fibers, constructions, and finishes used in these items. Continuing research is needed to make such guidance possible. Needed are studies to determine the properties imparted to textiles by different fibers, fiber blends, fabric constructions, and finishes and to identify the properties textiles need for specific uses. To furnish guidance consumers want on the selection and use of appropriate laundry aids, more information needs to be obtained on the nature of soils, stains and contaminants and their removal from fabrics of different fiber contents and finishes. Also needed are further studies on environmental and other factors that accelerate undesirable changes in textiles and on means to prevent such changes. Because textiles are potential disseminators of pathogenic microorganisms, research is needed on factors influencing their survival on fabrics and on methods suitable for consumer use for controlling such transmission. Up-to-date information on body proportions is needed as a basis for sizing systems that will insure a continuing supply of well-fitting clothing. Designs for garment features are needed that will contribute to the comfort, safety, and efficiency of the wearer.

USDA AND COOPERATIVE PROGRAM

Investigations include studies of the relationship of the in-use performance of fabrics of known fiber type, construction, and finish with laboratory determinations of such properties as elastic behavior, dimensional stability, and resistance to abrasion. Studies are conducted on the nature of soil and its removal from fabrics; the nature, causes, and prevention of undesirable changes in fabrics; and the role of fabrics in the dissemination of microorganisms and means of control. Principles of construction for use in making, repairing, or altering clothing and household textiles are developed. Anthropometric data are obtained as a basis for the sizing of apparel. The Division's scientific effort devoted to research in this area in Fiscal Year 1967 totaled 1.0 scientific man-year at Beltsville, Maryland, 0.5 scientific man-year at Knoxville, Tennessee, and the equivalent of 2.3 scientific man-years in contract research.

Initiation of further work in this area is awaiting relocation of the Textiles and Clothing Laboratory in Knoxville, Tennessee.

PROGRAM OF STATE EXPERIMENT STATIONS

The State program in this area totals 17.9 scientific man-years.

PROGRESS--USDA AND COOPERATIVE PROGRAMS

A. Performance of fabrics for clothing and household use. A patent was obtained on a stretch-fabric tester and one journal article was published which reports work completed during a previous reporting period.

B. Removal of soil and prevention of undesirable changes in textiles. Home and Garden Bulletin No. 49, Soaps and Detergents for Home Laundering was revised and is in press.

C. Dissemination of microorganisms by fabrics. Research initiated under contract in Fiscal Year 1966 to obtain further quantitative data on the survival and infectivity of bacteria and viruses on fabrics, following inoculation by direct contact, aerosol, and dust, is nearing completion. A paper on The Persistence of Vaccinia Virus on Fabrics Impregnated with a Virucidal Agent was presented at the Alabama Academy of Sciences in April 1967 and is scheduled for publication in July 1967. A paper on Factors Affecting the Viability of Staphylococcus Auerus on Fabrics was presented at the annual meeting of the American Society of Microbiology in May 1967. Two other papers are being prepared for publication.

Home and Garden Bulletin No. 97, Sanitation in Home Laundering was revised and is now in press.

D. Anthropometric measurements basic to the sizing of clothing.

1. Instrumentation for measuring children's feet. Working drawings and detailed specifications have been received from the contractor, the University of Rochester, for instrumentation designed to take 96 measurements on each foot of 2- to 18-year old subjects. Half of the 96 measurements would be taken with the foot in a weight-bearing position. The time required to obtain the 182 measurements on each subject is estimated to be six minutes. Measurements taken on a sample population would provide a basis for improved systems of sizing children's shoes. They would also provide valuable information on foot development.

The design calls for the use of radiographic, photographic, and electronic techniques. Trial measurements and calculations made by the contractor indicate that the amounts of radiation to which the subjects and measurers would be exposed are well within safe limits. This would have to be confirmed before the technique is used in measuring children's feet. Also it would be necessary to make certain that the proposed use of radiography does not violate Federal or State regulations.

2. Body measurements of 20- to 29-year old women. In research to determine whether significant changes in body proportions have occurred since the comprehensive USDA study of 1939-40, fifteen body dimensions have been determined on 350 women, age 20-29 years. The subjects, all residents of the greater Boston area, included graduate students, clerical workers, sales women in a large department store and workers in clothing factories.

Twenty-one indices, each showing the relationship between two of the dimensions, have been calculated and pertinent statistical constants have been determined for the dimensions and the indices. Comparison of the data with corresponding data obtained with 20- to 29-year old subjects in the 1939-1940 study is in progress. This research is being conducted under contract by Boston University.

3. Body measurements of 65- to 79-year old women. Research has been initiated under contract to obtain anthropometric data for the development of systems for sizing apparel for elderly women. Measurements are to be taken on a sample of at least 650 women, age 65-79 years of age. The sample will be composed of four subsamples, each to be obtained in a different geographic region, and insofar as possible will approximate a random sample of noninstitutionalized women, white and nonwhite in their proportion in the general population at this level. The measurements will include most of those taken in the USDA study of 1939-40 on which present systems of sizing women's apparel are based but which included few women of 65 to 69 years old. The contractor is Boston University.

PUBLICATIONS--USDA AND COOPERATIVE PROGRAMS

Performance of fabrics for clothing and household use

Fletcher, H. M. and Hensley, M. L. 1966. Relationship of Wear and Laboratory Tests in Slipcovers Made of 35 Fabrics. Jour. Home Econ. 58 (9): 740-744.

Line Project Check List -- Reporting Year July 1, 1966 to June 30, 1967

Work and Line Project Number	Work and Line Project Titles	Work Locations During Past Year	Line Project Incl. in	
			Summary of Progress (Yes-No)	Area and Subheading
CFE 1	Food consumption and dietary levels.			
CFE 1-8(C)	Household practices in homefreezer management.	Hyattsville, Md.	Yes	1B
CFE 1-9(C)	Use and discard of food in households.	Philadelphia, Pa.	No	--
CFE 1-10	Effects of food distribution programs on diets of needy families.	Hyattsville, Md.	No	--
CFE 1-11(C)	Nationwide survey of household food consumption, 1965-66.	Hyattsville, Md.	Yes	1A1
CFE 1-12(C)	Nationwide survey of food intake of individuals, spring 1965.	Philadelphia, Pa.	Yes	1A1
CFE 1-13(CA)	Diets and nutriture of preschool children in low- and middle-income families, Honolulu.	Hyattsville, Md.	Yes	1A3
CFE 1-14(CA)	Acceptance of the school lunch program in Louisiana high schools.	Honolulu, Hawaii	Yes	1E2
PL-480	Food consumption in relation to family income in the rural population of Spain.	Hyattsville, Md.	No	--
CFE 2	Appriaisal of foods and diets for human nutrition.			
CFE 2-5(Rev.)	Nutritive content of the U.S. per capita food supply, 1909 to present.	Hyattsville, Md.	Yes	1C
CFE 2-6	Food budgets.	Hyattsville, Md.	Yes	1D
CFE 2-7	Interpretation of research for food and nutrition programs and policies.	Hyattsville, Md.	Yes	1F
CFE 2-8	Tables of trace elements and sulfur in foods.	Hyattsville, Md.	No	--
CFE 2-9	Tables of selected B-vitamins in food-- folic acid, pantothenic acid, vitamins B-6 and B-12.	Hyattsville, Md.	Yes	2A
CFE 2-10	Compilation of data on the composition and nutritive value of foods.	Hyattsville, Md.	Yes	2C,D
CFE 2-11	Evaluation of publications for applied nutrition programs.	Hyattsville, Md.	Yes	1F
CFE 2-12	Nutrition Programs Service.	Hyattsville, Md.	Yes	1F
CFE 2-13(C)	Attitudes and beliefs about food and health as factors influencing food choices.	Washington, D.C.	Yes	1F
CFE 2-14	Nutritive content of Type A school lunches.	Hyattsville, Md.	Yes	1E1
CFE 2-15	Tables of amino acid content of foods.	Hyattsville, Md.	Yes	2B

Continued

Line Project Check List -- Reporting Year July 1, 1966 to June 30, 1967

Work and Line Project Number	Work and Line Project Titles	Work Locations During Past Year	Line Project Incl. in	
			Summary of Progress (Yes-No)	Area and Subheading
CFE 3	Rural family expenditures and household management.			
CFE 3-1(Rev.)	Development of Family Economics Review and Outlook reports.	Hyattsville, Md.	Yes	3D
CFE 3-5(Rev.)	Rural family living in selected areas in Texas.	Hyattsville, Md.	No	--
CFE 3-7	Rural family spending patterns in 1961.	Hyattsville, Md.	Yes	3A1
CFE 3-9	Development of clothing budgets.	Hyattsville, Md.	Yes	3C
CFE 3-10	Use of time by homemakers.	Hyattsville, Md.	Yes	3B
CFE 3-11(CA)	Clothing acquisitions as a basis for the development of standards for clothing budgets for low-income families.	Hyattsville, Md. Ames, Iowa	Yes	3C
CFE 3-12	Income needed to provide equivalent levels of consumption to rural and urban families.	Hyattsville, Md.	Yes	3A2
CFE 3-13(GR)	Resource conservation and augmentation in household activity patterns.	Hyattsville, Md. E.Lansing, Mich.	Yes	3B
CFE 3-14(C)	Development of an index measuring the relative economic status of individual rural families.	Hyattsville, Md. Durham, N.C.	Yes	3A2
CFE 3-15(GR)	The use of simulation techniques in the study of family financial decision making.	Hyattsville, Md. Pullman, Wash.	Yes	3B
CFE 4	Fabric quality, construction, and care of clothing and household textile articles.			
CFE 4-1(C)	Women's measurements for sizing apparel.	Hyattsville, Md. Boston, Mass.	Yes	4D2
CFE 4-2(C)	Quantitative studies on fabrics as disseminators of microorganisms.	Hyattsville, Md. Birmingham, Ala.	Yes	4C
CFE 4-3(C)	Development of instrumentation and procedures for anthropometric measurements essential for the improvement of sizing systems for children's footwear.	Hyattsville, Md. Rochester, N.Y.	Yes	4D1
CFE 4-4	Use of hypochlorite bleach on soiled cotton fabrics as a factor in deterioration of cotton fabrics. Part II.	Beltsville, Md. Hyattsville, Md.	No	--
CFE 4-5(C)	Anthropometric measurements of elderly women for sizing apparel.	Boston, Mass.	Yes	4D3

